

CLAIMS:

1. A method for extracting and processing video content to be emulated by an ambient light source (**88**), using output thresholding, comprising:

[1] Extracting color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content;

[4] Thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T1, T2**).

2. The method of claim 1, additionally comprising the following steps after step [1]:

[2] Transforming said color information to an unrendered color space (**XYZ**);

[3] Transforming said color information from said unrendered color space to a second rendered color space (**R'G'B'**) so formed as to allow driving said ambient light source.

3. The method of claim 1, wherein step [1] additionally comprises extracting an average color (**R_{Avg}**) from said color information.

4. The method of claim 1, wherein step [1] additionally comprises at least one extraction of said color information from an extraction region (**R1**).

5. The method of claim 4, wherein step [1] additionally comprises using said extraction of said color information to broadcast ambient light (**L4**) from said ambient light source adjacent said extraction region.

6. The method of claim 1, wherein said threshold comprises a first threshold (**T1**) and a second threshold (**T2**), wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds.

7. The method of claim 2, additionally comprising performing a gamma

correction to said second rendered color space.

8. The method of claim **2**, wherein steps [2] and [3] additionally comprise matrix transformations of primaries (\mathbf{RGB} , $\mathbf{R'G'B'}$) of said rendered color space and second rendered color space to said unrendered color space using first and second tristimulus primary matrices (\mathbf{M}_1 , \mathbf{M}_2); and deriving a transformation of said color information into said second rendered color space ($\mathbf{R'G'B'}$) by matrix multiplication of said primaries of said rendered color space, said first tristimulus matrix, and the inverse of said second tristimulus matrix (\mathbf{M}_2^{-1}).

9. The method of claim **8**, wherein said unrendered color space is one of CIE XYZ; ISO RGB defined in ISO Standard 17321; Photo YCC; and CIE LAB.

10. The method of claim **8**, wherein step [1] additionally comprises extracting an average color (\mathbf{R}_{AVG}) from said color information.

11. The method of claim **10**, wherein step [1] additionally comprises at least one extraction of said color information from an extraction region ($\mathbf{R1}$).

12. The method of claim **11**, wherein step [1] additionally comprises using said extraction of said color information to broadcast ambient light ($\mathbf{L4}$) from said ambient light source adjacent said extraction region.

13. The method of claim **2**, wherein steps [1], [2], and [3] are substantially synchronous with said video signal (\mathbf{AVS}).

14. The method of claim **2**, additionally comprising broadcasting ambient light ($\mathbf{L1}$) from said ambient light source using said color information in said second rendered color space.

15. A method for extracting and processing border region video content from a rendered color space (\mathbf{RGB}) to be emulated by an ambient light source ($\mathbf{88}$) using output thresholding, comprising:

[1] Extracting color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content in said rendered color space;

[2] Extracting an average color (**R_{Avg}**) from said color information from an extraction region (**R₁**) in each of said individual frames;

[3] Transforming said average color to an unrendered color space (**XYZ**);

[4] Transforming said average color from said unrendered color space to a second rendered color space (**R'G'B'**) so formed as to allow driving said ambient light source;

[5] Thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T₁, T₂**);

[6] using said average color to broadcast ambient light (**L₄**) from said ambient light source adjacent said extraction region.

16. The method of claim **15**, wherein wherein said threshold comprises a first threshold (**T₁**) and a second threshold (**T₂**), wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds..

17. The method of claim **15**, wherein steps [3] and [4] additionally comprise matrix transformations of primaries (**RGB, R'G'B'**) of said rendered color space and second rendered color space to said unrendered color space using first and second tristimulus primary matrices (**M₁, M₂**); and deriving a transformation of said color information into said second rendered color space (**R'G'B'**) by matrix multiplication of said primaries of said rendered color space, said first tristimulus matrix, and the inverse of said second tristimulus matrix (**M₂**)⁻¹.

18. A method for output thresholding an ambient light source (**88**) for emulation of video content, comprising:

[1] Extracting color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content;

[6] Thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T₁, T₂**).

19. The method of claim 18, additionally using a colorimetric estimate and employing an interframe interpolation process, said method additionally comprising:

[2] Decoding said video signal into a set of frames (F), extracting said color information from only selected extraction frames (F₁, F_N), and performing interframe interpolation between said extraction frames to yield interpolated frames (G₂, G₃ +), said color information then newly derived from said extraction frames and said interpolated frames;

[3] Extracting a colorimetric estimate from said color information from an extraction region (R1) in each of said individual frames;

[4] Transforming said colorimetric estimate to an unrendered color space (XYZ);

[5] Transforming said colorimetric estimate from said unrendered color space to a second rendered color space (R'G'B') so formed as to allow driving said ambient light source;

[7] using said colorimetric estimate after step [6] to broadcast ambient light (L4) from said ambient light source adjacent said extraction region.

20. The method of claim 18, wherein said threshold comprises a first threshold (T1) and a second threshold (T2), wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds.